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ABSTRACT

This report describes a program to use various instructional strategies to increase student motivation in the learning process. The targeted population was high school students in a multicultural, middle-class community in a suburb of Chicago (Illinois) with 1,926 students. The problems of low participation, off-task behavior, and inadequate processing skills were noted through teacher observation, checklists, and conduct reports. Faculty reported that lack of student motivation came from content-oriented classes that provided little opportunity for students to create individual expressions and to find relevance in the materials presented. Further analyses revealed that students were unprepared to apply critical thinking skills to problem solving tasks. A review of solution strategies suggested by research and an analysis of the problem setting resulted in selection of three major intervention strategies: (1) the introduction of a variety of critical thinking tasks; (2) the use of cooperative learning techniques; and (3) the practice of writing reflective journal entries to enhance metacognition. Generally positive results were apparent from each of the interventions. Participation increased, reflection and metacognition were enhanced through journaling, behavioral problems decreased, and a higher level of critical thinking was apparent in problem solving. In addition, the practice of cooperative learning activities resulted in a comfortable peer environment where students experimented with new and creative responses to the challenges of daily assignment. Fifteen appendixes present lesson plans and supplemental materials. (Contains 1 table and 17 references.) (Author/SLD)

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IMPROVING STUDENT MOTIVATION IN THE SECONDARY CLASSROOM THROUGH THE USE OF CRITICAL THINKING SKILLS, COOPERATIVE LEARNING TECHNIQUES, AND REFLECTIVE JOURNAL WRITING

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of the School of Education in Partial Fulfillment

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DEDICATION

This report is dedicated to my family and friends. They have given me the support necessary to begin this project, and without their encouragement, I would never have been able to complete it. Thank you for helping me to see things in myself that I did not know were there. Thank you for believing in me when I was not ready to believe in myself. Last of all, I would like to thank my grandfather, for passing down to me his love of learning. I hope I can do the same for my children and grandchildren.

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ABSTRACT

This report describes a program to use various instructional strategies to increase student motivation in the learning process. The targeted population consists of high school students in a multicultural, middle class community, located in a suburb of Chicago. The problems of low participation, off-task behavior, and inadequate processing skills were noted through teacher observations, checklists, and conduct reports.

Faculty report that student lack of motivation in the learning process results from content oriented classes which provide little opportunity for students to create individual expression and to find relevance in the materials presented. Further analysis of probable cause data reveals that students are unprepared to apply critical thinking skills to problem solving tasks.

A review of solution strategies by knowledgeable others combined with an analysis of the problem setting, has led to the selection of three major intervention strategies: the introduction of a variety of critical thinking tasks, the use of cooperative learning techniques, and the practice of writing reflective journal entries to enhance metacognition.

After careful consideration of the results of the interventions in classroom practice, it was noted that generally positive results were apparent in each of the assessments used. Participation increased, reflection and metacognition were enhanced through journaling, behavioral problems decreased, and a higher level of critical thinking was evidenced in problem solving. Furthermore, the practice of cooperative learning activities resulted in a comfortable peer environment where students experimented with new and creative responses to the challenges of daily assignments.

CHAPTER 1

PROBLEM STATEMENT AND CONTEXT

General Statement of Problem

Students of the targeted secondary classes exhibit inadequate motivation in the learning process. Evidence for the existence of the problem includes teacher observational checklists, teacher journal entries, and surveys.

Immediate Problem

Joliet West High School, one of two secondary schools in Joliet Township High School District 204, houses 1,926 students in grades 9 through 12. Based on the 1995-1996 school year figures, the average class size for each grade level is 28. The building is an air conditioned, closed class structure consisting of the main building and three wings. The main building houses administrative offices, the media center, special education, the writing lab, and all classrooms for general education. The auditorium, the Little Theater, and all the art and music rooms are clustered into the north wing of the school, while the west wing represents all of the athletic rooms of the campus, including two gymnasium and locker rooms, a dance studio, a wrestling room, a weight room and a fitness center. Various shop classes, technology labs, a maintenance area, and a cafeteria make up the east wing of the Joliet West campus.

As of September 30, 1995, the racial-ethnic makeup reported for Joliet West students is 56.0% White, 31.4% Black, 8.5% Mexican-American, 3.7% Asian/Pacific Islander, and 0.4% Native American. The percentage of students eligible for bilingual education is 2.3%, which is much lower than the district average of 7.8%. Students who come from low income families make up 30.4%, considerably lower than 43.9% for the district. These students receive public aid, live in institutions for neglected or

delinquent children, are supported in foster homes with public funds, or are eligible to receive free or reduced-price lunches. Joliet West's attendance rate is 92.7% compared to 91.7% for the district. The number of students who enroll in or leave school during the school year, referred to as student mobility, make up 21.6% of the general student population, much higher than the district average of 13.0%. For both Joliet West and the district as a whole, there is 0.0% chronic truancy (Joliet Township High Schools/West Campus, District 204 Report Card, 1996).

There are 138 certified staff members at Joliet West High School, and 114 of these are classroom teachers. District wide, the racial-ethnic background of the teachers includes 86.9% who are White, 8.9% who are Black, and 4.2% who are Mexican-American. Joliet West's pupil to teacher ratio is 18.6:1, and the average number of years of teaching experience is 15.4. Eighteen of these teachers have either a bachelor of arts (BA) or science (BS) degree, while thirty-one teachers are credited with a BA/BS plus 15 graduate hours. Twenty teachers have master's degrees, 65 have a master's plus 15, 30, or 45 hours, and four teachers have completed their doctorate degrees (Joliet Township High Schools/West Campus, District 204 Report Card, 1996).

Students are placed in classes at Joliet West according to gifted, A level, regular level, and special education tracks. All classes are 55 minutes in length with the exception of study halls which are 25 minutes opposite a 25 minute lunch period. There is a tech prep program which operates as a school within a school and follows a separate block schedule. In the block schedule, classes meet for 85 minute class periods for every other day. In order to meet graduation requirements, all students at Joliet West must complete 20 hours of academic credits and 40 hours of community service. Students are required to take four years of English, two years of mathematics, one year of social science, one year of U.S. history, two years of science, and four years of physical education. The latter must include one semester of health and may

include one semester of driver education. Electives compose the remaining six credits, including at least one credit from either foreign language, art, music, or vocational education classes.

Students in the tenth grade tech prep program concentrate on writing and speaking skills. The materials are primarily teacher-created and interdisciplinary to take advantage of the block schedule. Tech prep includes a required technology course in each of the four grades as well as an emphasis on the world of work beyond high school with field trips and guest speakers forming an integral part of the program.

Students in the tenth grade are assessed by the Illinois Goal Assessment Program (IGAP) in reading, writing, and mathematics, while in the eleventh grade, IGAP tests include sections in science and social science. In addition, all freshman, sophomores, and juniors are evaluated using the California Achievement Test (CAT). All students are graded quarterly on a district-wide basis and receive two semester report cards. Midquarter progress reports are sent home each quarter, allowing teachers to comment on student attitude and achievement either positively or negatively. Grading scales vary among departments and individual teachers. The two most commonly used grading scales include letter grades of A (93-100), B (86-92), C (78-85), D (70-77), and F(0-69) or A (90-100), B (80-89), C (70-79), D (60-69), and F (0-59).

Special education students who are mainstreamed into the regular and A level tracks at Joliet West participate in all state and local assessments, while the thirty-one students currently placed in self-contained special education classrooms are exempt from state and local testing. The total number of students who receive special education services at Joliet West is 243.

Textbooks used in English classes vary depending on the year and the level being taught. Some version of the literature series published by Scott, Foresman is most widely used. In all English classes, blocks of time are devoted to a variety of novels, short stories, essays, and poems. At least once each semester, in most academic

classes, students are required to spend time in the writing lab using Writer's Workbench, a computer writing analysis system. Most special education students use teacher-created materials or materials adapted from a variety of sources Self-contained special education students do not use Writer's Workbench.

Description of Surrounding Community

Joliet Township High School District 204 is located in Joliet, Illinois. In this district 48.4% of the population is White, 31.5% is Black, 17.2% is Mexican-American, 2.2% is Asian/Pacific Islander, and 0.4% is Native American. Forty-three percent of the 4,325 students enrolled are from low-income families, and 7.8% are limited English proficient. Of the 235 teachers in the district, 43.4% are male and 56.6% are female with an average of 15.4 years of teaching experience and an average yearly salary of $47,311. Within the district, 65.1% of the teachers have a master's degree or beyond and the student to teacher ratio is 21.4:1. Administrators have an average district salary of $83,346, and the student to administrator ratio is 403.8:1 (Joliet Township High Schools/West Campus, District 204 Report Card, 1996).

Joliet West High School is located on the west side of Joliet, incorporated as a city in 1852. Joliet consists of 34 square miles and has a population of 76,836. As of 1992, the median home value in Joliet was $63,900. Over 65% of the population of Joliet is White, slightly less than 23% is Black, and 12% is Mexican-American. The median age is 31.5. Of the people in Joliet 18 years of age and older, 31% are high school graduates, 21% have some college credit, 5.9% have associate degrees, 8.7% have bachelor's degrees, and 4.6% have graduate or professional degrees. Eighteen percent of people 18 years of age and older finished some portion of ninth to twelfth grades without a diploma, while 10% have less than ninth grade schooling (Joliet Census of Population and Housing, 1990).

The Regional and National Context of the Problem

Lack of motivation in the learning process is a problem educators have recognized at all levels of education. While preschoolers display a natural curiosity and enthusiasm for learning, their love for learning soon begins to diminish. As students enter middle school, the pressures and distractions of adolescence are further complicated by increased participation in a variety of exploratory activities, many of which are not academic. Interest in the opposite sex and peer groups, participation in sports or music programs, and the demands placed on their time by busy families are just a few examples of the drain on adolescents' energy levels. At this time in their development, learning becomes associated with drudgery instead of fun. By the time these children reach 18 years of age, more than one in four quit school (Lumsden, 1994). Many educators feel that the high dropout rate and the pervasive problem of apathy happen as a result of several significant factors, including some factors which cannot adequately be addressed in the classroom.

Even though educators readily agree that student apathy is a major problem, there is disagreement about whether a student's motivational history can be significantly overcome and enhanced by teacher efforts to actively engage the learner. The problem of lack of engagement in the learning process is so complex that Lumsden (1994) refers to its components as the strands of the motivational web.

The first challenge faced by the classroom teacher then becomes to accurately identify and analyze the variety of features in Lumsden's motivational web. Student motivation to learn is not easy to characterize. Incomplete homework is not always a sign that students do not care about learning. Students who sleep in class may be exhausted, ill, or unable to cope with personal difficulties (Dodd, 1995). On the surface it may appear that student behaviors such as withholding effort, cheating, or procrastination on assignments would indicate a total denial of the educational process; however, as Raffini's study in 1993 established, the student may actually be

trying to protect a fragile self-image (as cited in Lumsden, 1994). Whatever the variety of causes, it is widely held that a multi-faceted approach to understanding the problem is imperative.

CHAPTER 2

PROBLEM EVIDENCE AND PROBABLE CAUSES

Problem Evidence

As stated by Lumsden (1994), when young children grow into adolescents and teenagers, their passion for learning and natural curiosity about their world, often seem to diminish. Many are physically present in the classroom but are largely mentally absent; they fail to invest themselves fully in the experience of learning. These are the students in high school classrooms who rarely volunteer, who fall asleep, who mumble unintelligible answers when called upon, or who exhibit off-task behavior on a regular basis. Some students resist intellectual effort in which they have to use mental energy. Sizer (1984) labeled this passive response a "conspiracy for the least," or an agreement by the students and teacher to do just enough to get by (as cited in Tama, 1989). Researchers agree that lack of motivation has long been a problem in schools, whether because of students' personal problems or because of lack of interest in a curricula which students feel is both irrelevant and repetitious (Allen, 1996; Dodd, 1995; Perrone, 1994). Whatever the causes may be, the results are devastating when one considers secondary education as the final significant step in employment preparation for many of these students. For others, high school is a bridge between the carefree world of the adolescent and the serious world of the college adult. Therefore, participation in class is critical to success in later life, whichever path is chosen.

Furthermore, Dodd (1995) explains that in her early years of teaching, she became discouraged and eventually felt defeated by the failure of her well-intentioned attempts to engage students in the learning process. Educators see student passivity as a multi-faceted problem affecting the upper, middle and lower tracks of the school

community for different reasons. Many experienced classroom teachers feel as overwhelmed by this challenge as Ms. Dodd did in her first year of teaching. Clearly, before any worthwhile attempt can be made to remedy the problem, the extent and depth of the lack of student participation should be determined.

In order to establish the extent to which lack of student motivation to participate in the learning process exists in the targeted high school, the teacher/researcher distributed a teacher survey. The survey focused on specific, observable student behaviors such as a hand being raised to volunteer or ask a question or the taking of notes during a class discussion. In addition, teachers were asked to assess their students' classroom experiences with respect to changes in environment and educational expectations.

The survey consisted of five questions intended to focus on a student's likelihood to participate in a class when that student was new to the class (see Appendix A). Since the targeted school has a high mobility rate, nearly 22%, this group was determined to be a significant number of the total student population. Furthermore, sophomore English classes are rescheduled each semester to accommodate a semester of speech and a semester of composition, a practice which completely redistributes this segment of the student population each semester. Since a new teacher and a new peer group results in each sophomore English class two times each year, the significance of the survey results was increased.

Twenty teachers responded to the survey, five from the humanities and 15 from the communicative arts divisions. To best establish the engagement level of their pupils, teachers were given the surveys in the two weeks following the end of the first and third quarter grading periods. Grades had been determined by this time and a rapport was established in the classes. It should be noted that all levels of students were represented by the results of the survey, since the teachers who responded teach

regular, advanced, and honors level classes. In some cases, special education students are mainstreamed into the classes as well.

Questions one and two asked if students new to a class would be less likely to raise a hand to volunteer or to answer when called upon. For each question, 55% of teachers responded that yes, new students would be less likely to answer or volunteer. This indicates a passive learning situation whenever the teacher and peer group are new. Obviously, students need time to familiarize themselves with new surroundings and people. Teacher expectations may be unclear at first and there are some instances where students are not academically ready for the material being covered in a course. A hesitancy to take chances, drawing attention to oneself when the situation is unfamiliar, would be expected. However, this 'watch and wait' phase is stressful and can slow down the learning process for someone who most needs to reach out, actively making a connection with other members of the class.

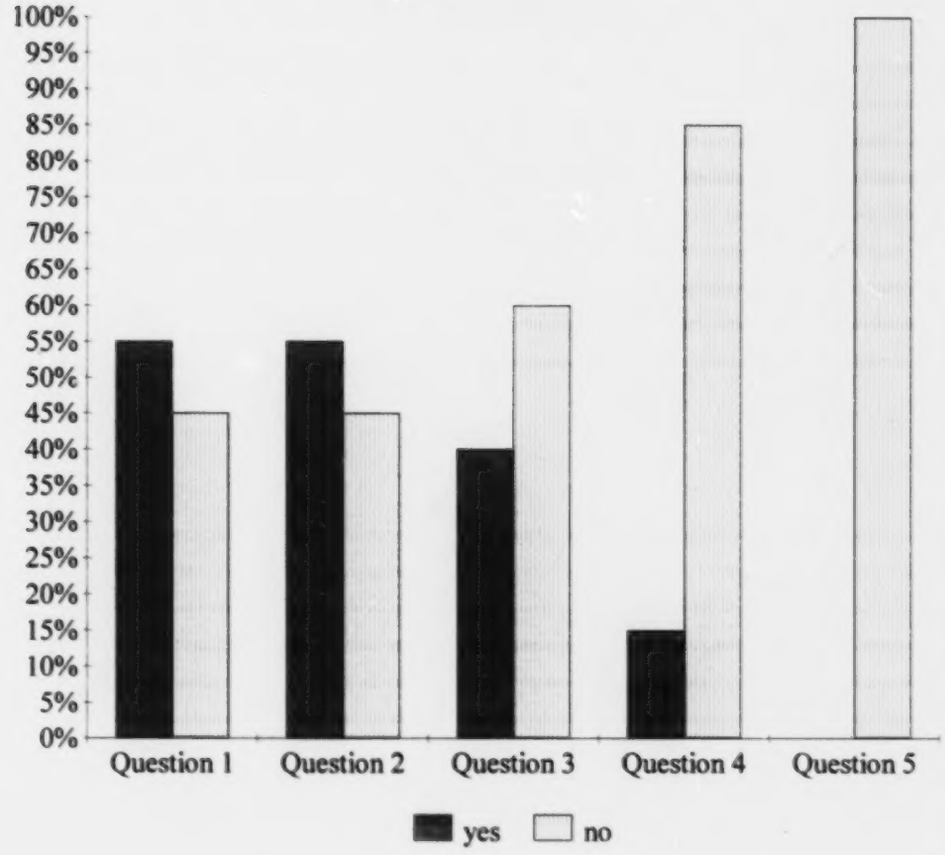
The third question showed that transfer students were more likely to take notes in class. Forty percent of teachers responding felt this was true. Perhaps by writing everything down, an emotionally safe level of participation, new students can ease into class activities. Taking notes also provides a structure for pupils to find order in their new environment. Notes are concrete; taking them shows a desire to follow along with what the group is doing, even though from a quiet distance.

Conversely, only 15% of the of the teachers surveyed believed that new pupils would be more likely to ask a question during class when they were confused about an assignment. This is not a contradiction to question three, but rather seems to reflect the hesitancy which is indicated in questions one and two. Even when students failed to understand, they would be less likely to ask for help. One way to interpret this could be that class notes or perhaps a textbook would provide the answer at a later time. Another possibility is that students would ask for help from another student or from the teacher after class when the majority of the peer group were out of sight.

Again, the fragile self-image of the teenager must be protected and the chance of appearing uninformed or unprepared must be avoided in front of the peer group.

In the final question of this survey, teachers were asked whether new students would be more likely to exhibit off-task behavior. The response was a unanimous no; not one teacher felt so. It would be expected for transfer students, unsure of their unfamiliar environment and confused by strange assignments, to pay particular attention in class. While these students do not actively participate, they are not oblivious to their surroundings. Questions three and five share similar points of view regarding new students. Figure 1 illustrates the percentages of teachers' responses to the survey questions.

Figure 1
Teacher Survey Data



Probable Causes (site-based)

An analysis of the site in relation to the problem evidence suggests several probable causes. A major influence on student engagement is the number of students who qualify for low income aid. As stated in chapter one, approximately 30% of the student body qualifies, which means that almost one third of the students might not own the proper reference materials to complete their assignments. Because of the materials shortage, teachers have to limit assignments which involve home resources. Also, the use of computers for students who do word processing and spreadsheets has

to be restricted to times when computer labs are available. Many students are interested in using these resources but the school is also limited by expenditures. Since many students do not have access to the kind of materials that other peers possess, they may develop a low sense of self-worth and feel that they cannot contribute to the classroom environment. Direct efforts to include them must be made.

In addition, a consistently high mobility rate is a significant factor contributing to the lack of engagement. Students are sometimes transferred between high schools within the district for various reasons. A tendency for counselors to rearrange student schedules in order to balance class sizes or comply with parent requests also makes it difficult for teachers and students to develop close relationships. These schedule changes routinely take place for the first month of each semester. Students who are caught within this system of change remain unfamiliar with their peer group and are less likely to offer answers to questions or contribute to a discussion. Responses which may draw attention to the students who are new in a class are rare, therefore inhibiting creative problem solving. This is because new students may not have achieved a rapport with the established peer group and thus feel alienated.

A third cause for low engagement in the learning process is the teaching style of the classroom teacher. Some teachers are unwilling to try activities that encourage student interaction or allow students to move around the classroom in an unstructured, noisy environment. A traditional lecture style of instruction is still preferred by teachers who are reluctant to experiment with the newer cooperative learning techniques. While traditional lectures seem to preserve an orderly, teacher-centered classroom, discipline gives way to student boredom and student involvement in the content of the lesson is diminished. Classrooms are quiet but students are not necessarily on-task or learning.

Today's students are involved in more activities than any of the students from previous decades. They not only have school related clubs and sports to attend but also a growing majority have after school jobs to take care of personal financial needs. With changes in popular culture and development of new technologies, the application of our society's experiences should be required. Already developed points of view from the world of media, sports, science, arts, and business can be an effective tool in the learning process. When incorporated into instructional activities, relevant experiences serve to enhance the meaning of classroom material. This allows students to see that what they are learning makes sense and is important (Ginsberg & Wlodkowski, 1995).

Probable Causes (literature based)

In response to an increasing demand on many educational systems throughout the country, research has been conducted to find the reasons for low student motivation in the classroom. As a result, many possible factors have been identified as causes for the low initiative exhibited by students.

One possible cause is related to the socio-economic status of various students. The National Educational Longitudinal Study (1988) documented trends about students in relationship to their question asking comfort. If a student is afraid to ask questions in class, then they are less likely to become actively engaged in the learning process. According to correlated data by Daly, Ser, and Roghaar (1994), there is a significant effect on question-asking comfort for students coming from different income quartiles. Students from families with higher incomes were most comfortable asking questions and getting involved in the classroom. It was then observed that there exists a widening gap between socially and economically advantaged students, and their less fortunate counterparts whose disadvantages in the home, school, and society become evident in their classroom interaction behavior.

If students experience the classroom as a caring, supportive place where there is a sense of belonging and everyone is valued and respected, they will tend to participate more fully in the process of learning (Lumsden, 1994). Students who move from school to school or between classrooms have to make adjustments to unfamiliar surroundings and new peers. While students are adjusting, they are less likely to engage in any activities which might draw attention to them. Obviously, this results in fewer school-related successes.

According to the research, teaching that ignores student norms of behavior and communication provokes student resistance, while teaching that is responsive prompts student involvement (Wlodkowski, R. & Ginsberg, M., 1995). This means that no one teaching strategy will consistently engage all learners and that a lecture style of teaching is unsuccessful in reaching all students. Tredway (1995) also believes in involving students actively in the learning process in order to relate activities to their own experiences, thereby engaging them on an emotional level. A lecture style of teaching is devoid of many of these opportunities and students do not have an active role in the lesson. Research conducted by Bonwell and Eison (1991) also showed that students prefer strategies promoting active learning to traditional lectures. This research revealed that when evaluating students' achievements, many strategies which promote active learning are comparable to lectures in promoting the mastery of content but superior to lectures in promoting the development of students' skills in thinking and writing. One drawback is that less curricular content is covered during active learning strategies, but students' interest in and retention of the material is significantly increased.

Lessons that stimulate questions and criticism in pursuit of truth, which are commensurate with cognitive and personal development of students, should be encouraged in the schools of a free society (Patrick, 1986). It is unrealistic to present material to students in such a way that they cannot apply it to life outside of the

classroom. Students must make choices, evaluations, and judgments every day regarding (l) information to obtain, use and believe, (2) plans to make, and (3) actions to take. As adults they will be living in a complex world and in a democracy where both individual and collective actions will require effective selection, processing, and use of information (Howe & Warren, l989). Curriculum design must take into account the relevance of the material to the students' lives. If lessons are viewed as having some valid application to the real life expectations and experiences of students in the classroom, student motivation will increase.

CHAPTER 3

THE SOLUTION STRATEGY

Review of Literature

Increasing student engagement in the learning process, as described by Strong, Silver and Robinson (1995), involves promoting student success, curiosity, originality, and relationships which are satisfying. This process is further enhanced by structuring the presentation of classroom material around students' interests and needs. Wlodkowski and Ginsberg (1995) also believe that teachers must relate teaching content to the cultural backgrounds of their students. If we relate topics of study to the students' lives, then we are more likely to draw students into the depth and complexity of a subject (Perrone,1994) . By relating material of interest to students, teachers can increase topic curiosity. To fully engage the students though, they must also permit students to express their creativity and foster positive relationships with others around them (Strong et al., 1995). Cooperative learning techniques provide opportunities for students to experience the curriculum in a hands-on classroom environment while at the same time allowing them the social outlet of working closely with small groups of peers. Small groups are non-threatening, making them perfect for creative problem solving while having the additional benefit of providing practice in teamwork skills. Discipline problems are less likely to occur with this active, less structured learning style. Individual contributions to the curriculum are encouraged in smaller, less risky, cooperative groupings. Students that do become involved are attracted to their work and are therefore, much more likely to experience success. In addition, the more actively engaged the students are, the more they will retain the material they've learned.

However, roadblocks exist in many schools today. Current research has shown that traditional lecture methods persist in many classrooms. Studies on the impact of these methods have shown that students prefer strategies promoting active learning to traditional lectures. This preference is also significant since a number of individuals are best served by techniques other than lecturing (Bonwell, Charles, Eison, 1991). If certain alternatives to the lecture format are used, then student engagement is increased.

The teaching of critical thinking skills is one of the solution strategies suggested as a tool to cultivate many students' minds. These students, regardless of social class or presumed limitations in ambition or ability, have some degree of potential to think critically (Patrick, 1986). The NCTE Committee on Critical Thinking and the Language Arts (1989) defines critical thinking as a process which stresses an attitude of suspended judgment, incorporated logical inquiry and problem solving, and leads to an evaluative decision or action (as cited in Tama,1989). By using higher level questioning techniques, a teacher moves from demanding simple recall to requiring some thought on the part of the student. Student participation in class discussion increases and discussions become more lively. Furthermore, higher level questioning techniques such as those developed from Bloom's cognitive taxonomy, encourage metacognition (see Appendix B). With an increase in metacognition, attention to thinking is promoted so that students develop a growing awareness of the relationship of thinking to reading, writing, speaking, and listening (Tama, 1989).

There are several strategies that can be used to direct students toward thinking and metacognition. Blakey and Spence (1990) suggested six classroom strategies for teachers to develop metacognitive behaviors. These researched methods included: identify what you know and what you do not know, talk about thinking, keep a thinking journal, plan activities, practice self-regulation, and use guided self-evaluation. It was pointed out that many of these strategies are already in

teachers' repertoires but they must become alert to them and consciously model them for students (Blakey & Spence, 1990).

If the modeling of these strategies is done correctly, then it is much easier for the teacher to move on to the step of increasing student motivation. Lumsden (1994) describes student motivation as a student's desire to participate in the learning process. There are many factors which can influence a student's motivation. The foremost of these is the student's home environment. Parents need to encourage their children's natural curiosity about the world. When children are raised in a home that nurtures a sense of self-worth, competence, autonomy, and self-efficacy, they will be more apt to accept the risks inherent in learning (Lumsden, 1994). If parents do not or cannot nurture their children, then students will often lack the ability to learn from their teachers. In households where both parents are employed, it may be that the adults simply do not have time to spend with their children. If a teacher can create the appropriate classroom setting, then this caring and supportive classroom will help students feel valued and respected. The way in which tasks are structured also helps to improve motivation. Lumsden (1994) suggests that tasks be challenging but achievable and that students should see how skills can be applied in the real world. Students that are allowed to succeed will then have an opportunity to develop higher self-esteem and perception of a locus of control. Daly, Dreiser, and Roghaar (1994) have found a relationship between these two personality traits and a student's comfort for answering questions. They also agree with influences of low-income and English proficiency having an effect on a student's engagement in the classroom. A demographic study of various cultural and economic homes revealed that there existed definite differences in question comfort of various groups of students. It is therefore vital to the classroom environment to have students learn how to ask questions that are relevant, appropriate, and substantial (Daly et al., 1994).

These questions can be used by the teacher and groups of students to develop classroom dialogues, a strategy that is effective for both teaching and applying critical thinking skills (Robertson & Szostak, 1996). The first step involves short written dialogues by two people, each taking a different viewpoint. While the groups are interacting within this structure, they must analyze and decide which of the viewpoints is most reasonable. The second step in the dialogue process is to have a focused student analysis of the patterns that occur in group dialogues (Robertson & Szostak, 1996). This analysis can be organized so that students have roles in a simulation or a teacher could adapt it into an outline format with student input.

In the final analysis of the literature based solutions, the methods presented by various authors call for students to be placed in the forefront of curriculum construction. Teachers can no longer treat the classroom as an information dumping ground. Subject material needs to be structured so that various learning styles are accommodated and students' needs are met. Curriculum design must be student-centered, taking full advantage of students' natural curiosity for the exciting world in which they live.

Project Outcomes and Solution Components

As a result of a motivational program during the period of September, 1996, to March, 1997, the sophomore students will increase their motivation to learn as measured by teacher checklists, grade book data, progress reports and anecdotal records. In order to accomplish the project objective the following processes are necessary:

1. Use of cooperative learning to apply critical thinking skills to content areas.
2. Use of instructional strategies that foster and integrate critical thinking into content areas.
3. Use of reflective journal writing to advance metacognition and transfer.

The following are the components of the solution:

1. Use of cooperative learning techniques in a variety of learning situations.

2. Use of cooperative task groups at least once per week to work on shared problem solving. (The group will follow up these exercises with a group processing activity, such as a PMI.)

3. Use of reflective journal writing in class at least once per week for approximately fifteen minutes. (Additional journal writing may be assigned.)

4. Use of selected mental energizers involving critical thinking skills.(These mental energizers will include short articles, quotes, interesting trivia facts, and current event clippings to establish an atmosphere that is both interesting and challenging. Mental energizers will be used in class twice per week.)

5. Use of lesson plans which will be designed to accommodate English classes on a block schedule.

Action Plan for the Intervention

The following action plan outline represents an estimate of the amount of curriculum content to be covered in the semester. Some flexibility in the planning is necessitated by the variable nature of the high school schedule. Late start days, assemblies, early dismissal days, faculty institute days, special test schedules to administer IGAP and other standardized tests, and field trip days are just a few of the possible variations which can result in a reduction of class time. Each unit has been planned with a realistic understanding of the lack of control teachers have over students' time in class. It should also be mentioned that while these schedule interruptions can be frustrating for the teacher, they sometimes provide students with

opportunities to experience an enjoyable side of high school life and a chance to catch up on their work by completing assignments at home.

Furthermore, the tech prep program has been designed to provide an active learning environment with more schedule variations than the usual content area teacher has to deal with. At the sophomore level, a hands-on approach to interdisciplinary curriculum development includes four to six off-site investigations per school year, guest speakers, job-shadowing, community service projects, and student participation in workshops to exchange information with other tech prep students in neighboring districts. In order to make better use of the time spent in the classroom, block scheduling was instituted at Joliet West High School for the tech prep sophomores. Whenever possible, academic goals cross curricular lines so that if students spend less time in English class writing an expository essay, they may select a topic which would be appropriate for another content area and finish the essay in that class. Credit could be given in both English and the other class. For example, a student might select a topic such as pollution and submit the essay to complete course requirements in an ecology class or in a chemistry class as well as in an English class. With some advance planning by the teachers, a suggested list of appropriate topics would be offered to students as a way of using their time more economically. Interdisciplinary lesson planning helps teachers to cover all their course requirements while it also helps students to make the connection between skills and content (see Appendix C). Skills are not taught in isolation and content area information is not presented without the supporting basic communication skills.

Action Plan

Week 1 Topic I: Developmental Composition

A. Class discusses cooperative learning techniques.

B. Task groups define and explain the parts of an essay.

C. Task groups present their summaries to the class.

D. Mental energizers are explained and the first example is given to the class.

Week 2

E. Class discusses author's tone and hand out worksheet.

F. Task groups identify and analyze the tone in sample essays.

G. Class composes five introductory paragraphs.

Week 3

H. Class discusses a mental energizer with a focus on asking categorical questions.

I. General rules of journaling handed out and discussed.

J. Task groups define and describe reflective and reactive journal entries.

Week 4

K. Task groups read and analyze essay on dress codes.

L. Class discusses mental energizer on dress codes.

M. Class writes a reflective journal entry on dress codes.

Week 5

N. Class uses essay on jeans to assess their understanding of IGAP essay format.

O. Class reads article on "Unkempt Speeders" to integrate dress code information with practical applications.

P. Reflective journal writing exercise is done after reading short news article on students who were disciplined for wearing eagle feathers with a graduation cap and gown.

Week 6 Topic II: The Compare and Contrast Essay

A. Venn diagram and ladder diagram are introduced as graphic organizers.

B. Concepts of parallelism and balance in a compare and contract essay are explained.

C. Each task group receives a different sample of a compare and contrast essay.

Week 7

D. Each task group cooperatively graphs its essay using color and shape for added impact.

E. Each group presents its essay to the class.

F. A reaction journal entry is written after reading aloud to class two short news articles about two very different, very famous, professional athletes.

Week 8

G. Class jigsaws three articles about technology for information about possible topics for compare and contrast essay.

H. Students brainstorm appropriate topics for compare and contrast essay, making a list on the overhead projector.

I. Each cooperative group determines which three topics are best and follows up with each member of the group choosing one of the topics.

Week 9

J. Students explain topic choices to the class in an early mini-speech.

K. Each student develops a rough draft of an outline for the compare and contrast essay.

L. The class investigates media center resources and gathers the additional research information on individual topics to complete the outline.

Week 10

M. Each student writes a rough draft of the compare and contrast essay.

N. Students write a reflective journal entry responding to an article listing the most desirable technological advances in the home.

O. Students exchange rough drafts and evaluate their partner's essay. (If time permits, students will develop a rubric for this purpose as a class project.)

Week 11

P. Students revise their own essays with their partner's comments in mind.

Q. Students attend a tutorial session in the computer writing lab to familiarize them with the rules of the lab and the use of the teacher's choice program to edit and revise their essays.

R. Students enter their essays into the system in the writing lab.

Week 12

S. Each essay is evaluated by a teacher's choice program of pre-selected criteria.

T. Students make corrections and improvements on their essays.

U. A second teacher's choice program is run after revisions are made.

Week 13

V. Students print their finished compare and contrast essays in the writing lab.

W. Students develop the information from the essays into speech presentations. Eye contact is emphasized.

Week 14 Topic III: Water Transportation

A. Transportation by water is discussed as a tech prep theme.

B. Information about barges is given to students by video presentation.

C. Students' note-taking skills are reviewed and practiced in preparation for a guest speaker.

Week 15

D. Students develop questions appropriate for the speaker's topic.

E. A guest speaker from the barge industry makes his presentation.

F. Students interview the guest speaker.

Week 16

G. Students write an article for the school newspaper, a parent newsletter, or the local community newspaper about the guest speaker and his presentation. Emphasis is placed on the identification of audience in the writing process and how diction and tone are affected by audience differences in the three assignments.

H. Students go to the writing lab to type their articles.

I. Students exchange their articles with other students for comments and then do a revision.

Week 17

J. Students return to the writing lab to finalize their articles.

K. Students write a reflective journal entry on what they think life would be like for them working on a barge.

Week 18 Topic IV: The River by Gary Paulsen

A. Literary terms are discussed and defined.

B. A three level study guide for The River is handed out to students.

C. Students answer study guide questions in cooperative learning groups.

D. Assessment of the novel is accomplished through teacher observation during cooperative learning exercises and follow-up discussion.

Methods of Assessment

In order to ascertain the success of the applied interventions, records will be kept on the numbers and reasons for student conduct reports (see Appendix D). Conduct reports are sent to parents as a communication from the teacher whenever a problem arises which is not a discipline problem. Sleeping in class, lack of class participation, failure to meet assignment deadlines or to turn in assignments are a few of the reasons why conduct reports are sent home. Student midquarter progress report code numbers and the frequency with which each is used will also be recorded and evaluated (see Appendix E). Students whose midquartrer progress reports indicate a low level of effort will be monitored for improvement throughout the intervention. The daily teacher observational checklist will reflect classroom behaviors as the interventions progress, providing evidence of student response during research (see Appendix F). Finally, student journals will be read and interpreted to determine the depth of intrapersonal reflection. A rubric will be used to outline a standard for determining the grade on each set of journal entries (see Appendix G). Journals should reveal if metacognition is developing and if self-evaluation shows a high level of transfer of classroom material to student thinking. Careful monitoring of student behavior should provide an accurate insight into whether the chosen interventions are having the desired effect on student attitudes and classroom motivation.

CHAPTER 4

PROJECT RESULTS

Historical Description of the Intervention

The objective of this project was to increase student motivation to participate in classroom activities, thus encouraging learning. Three types of intervention were implemented to accomplish this purpose: the use of cooperative learning techniques in classroom activities, the direct teaching of and practice in critical thinking skills, and the consistent use of reflective journal writing to enhance metacognition.

Cooperative learning structures formed the framework for a majority of the lessons taught in the English classes involved in the project. Since the students taking part in the research were enrolled in an innovative elective curriculum called tech prep, the focus of this program guided the research. A block schedule with 85 minute classes which meet every other day combined with an interdisciplinary approach to lesson design were considered when developing the action plan. Cooperative learning techniques were infused into a majority of lesson plans to break up the lengthy 85 minute class periods.

During the first week of the semester, students were divided into random groups of three and given questions to answer about cooperative learning. In this initial assignment, terms and techniques were defined and discussed; misconceptions were clarified. Various types of groupings, specific responsibilities of each member, social skills required for successful completion of the task at hand, and group processing techniques were some of the components covered by each class. Furthermore, the sophomores were told that there would be a variety of types of cooperative activities and grouping possibilities during the semester depending on the assignment. Tech prep stresses cooperation as one of its primary features in all classes; therefore, students were given opportunities throughout the year to participate in activities which would enhance their teamwork abilities.

Task groups were the most commonly used type of groupings. A deliberate effort was made, once the ability levels of the students became more familiar to the teacher/researcher, to mix the levels of capability in each group. A new triad was formed for most lessons, with the addition of one or two groups of four to include all students when numbers did not come out even. When a new group was formed, identical membership was avoided as much as possible and students were given different roles within the task groups than they had previously held.

A lesson typically began with a 20 to 30 minute direct instruction period to introduce the topic and provide background information. The next 30 to 45 minutes was devoted to the cooperative lesson, leaving at least 5 to 10 minutes for closure and group processing at the end of each period. Six weeks into the semester, the cooperative phase of the lesson could be designed as a longer part of the class period, even continuing to the next time that class met. Time was still allowed for a summary type of closure at the end of each class period with a brief review of the assignment when class reconvened. As units of instruction became more complex, cooperative techniques were expanded to include jigsaw which helped to cover an abundance of material in less time.

Processing was the final phase of all cooperative lesson plans (see Appendix H). Early in the semester, a PMI was taught as a form of class evaluation (see Appendix I). Comments offered during the PMI processing were usually written on the overhead projector by the teacher/researcher, but when time was limited, students sometimes composed a PMI chart as an individual homework assignment. The charts were then brought to class and discussed at the next session. By the end of the first quarter grading period, Mrs. Potter's Questions were added to the students' repertoire of processing techniques (see Appendix J). Also by this time, group processing was occasionally accomplished with an informal discussion rather than always being written on the overhead projector.

By the end of the first week of the semester "mental energizers" were introduced to students. The teacher/researcher explained the concept of higher order thinking skills and provided an example for student discussion and debate. Initially, critical thinking skills activities were to be featured twice per week. However, because some classes only met two times in a week due to block scheduling, it was necessary to reduce the frequency of the use of mental energizers after four weeks had passed. An effort was made to devote class time to critical thinking skills through the use of cartoons, word puzzles, short articles, and high interest trivia facts at least once in each week (see Appendices K, L, M, and N). Critical thinking skills were taught directly through the use of Bloom's Cognitive Taxonomy as well as direct instruction of questioning techniques. This instruction was reinforced throughout the school year by informal discussion and oral practice in problem solving, depending on the form of the mental energizer. Whenever possible, a direct link with the curriculum allowed for more time to be spent on the mental energizers, offering possibilities for cooperative learning tasks or individual writing assignments.

Journal writing was begun in the third week of the term. Students' reflections about a variety of school related topics were to be kept in their journals as well as ideas and reactions to other school appropriate topics of interest to them. Intimate diary entries were not allowed, nor were repeated entries about the same topic acceptable. No more than two entries could be devoted to any one topic in a set of twelve entries. Variety in topic selection was stressed, but exactly what students chose to write about was usually at their discretion. Each entry was to be at least one half page long, dated, and titled. While the practice of correct grammar and spelling was the goal, grades were not to be lowered for the occasional error, as long as the teacher/researcher could understand the writing. Journaling was used as an informal, personal, and private written record of student thought. Opinions were encouraged as long as the reasons for those opinions were clearly explained. Every four weeks,

students handed in their journals with twelve half page entries and an index. As the semester progressed it became necessary to expand the journal assignment to include creative writing entries such as poems or short stories, but these too were limited to no more than two of a kind per four week set. The journal became the vehicle for students to express their personal reactions to particular topics discussed in class. Reflective journaling was assigned for specific topics at times, and students were instructed to imagine themselves "into the topic" and to describe or to predict how they would see themselves as part of the scenario their imaginations created.

Journal assessment was accomplished through the use of a rubric which included the elements of: quantity of writing, variety of entry topics, inclusion of specific assigned topics, number of entries, and completion of an index (see Appendix G). As long as the journal was legible, complete, turned in on time, and school appropriate in topic selection and diction, it received full credit (see Appendix O). Students were instructed to bring their journals with them to class daily so that they could make use of class time by writing in their journals while attendance was being taken, or when they completed an assignment before others in the class had had a chance to finish. Every attempt was made to insure that grades were assigned objectively.

Presentation and Analysis of Results

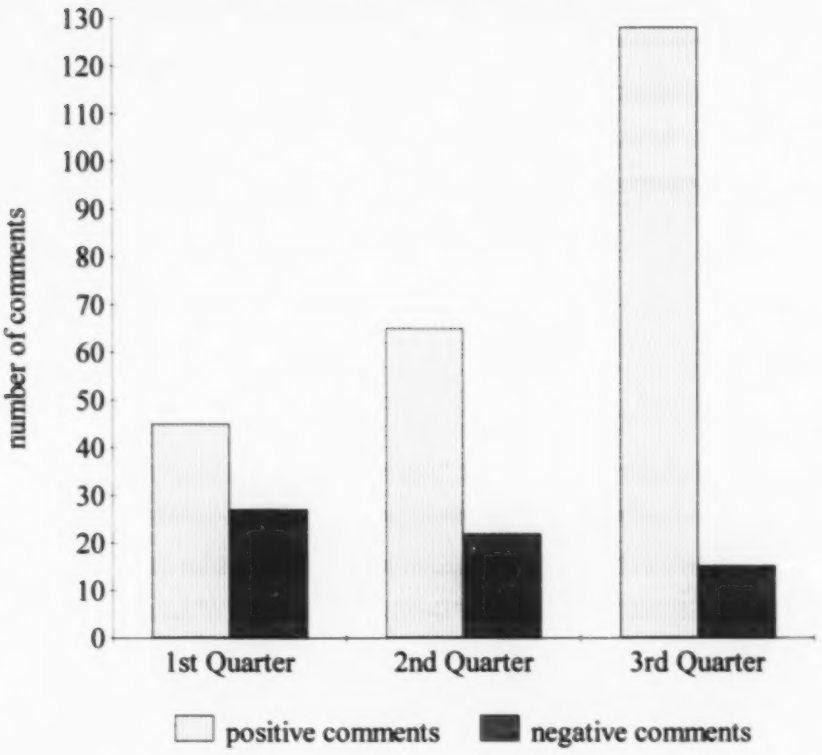
In order to assess the effects of cooperative learning strategies, critical thinking skills, and reflective journal writing on student motivation to learn, records were kept on the numbers of conduct reports which were sent home during each of the three grading periods when the interventions took place. Conduct reports represent the teacher's attempt to contact a parent in writing when a student is having a problem in class which is not disciplinary in nature. The most frequent problem areas listed on conduct reports for the students who took part in the project were: too many tardies, too many absences, failure to turn in assignments or homework, and failure to bring necessary materials to class. In the first quarter of the year, fourteen conduct reports

were sent to parents for the above listed reasons; in the second and third grading periods, six conduct reports each quarter were sent home for the same reasons. Since the numbers of necessary parental contact decreased after the first nine weeks of the interventions, it could be assumed that student motivation to attend class and to actively participate in class activities increased.

The fact that the number of conduct reports remained the same from the second to the third grading periods was not considered a high failure rate, since four of the six students who were included in the third quarter count were also included in the second and first quarter counts. These same four students exhibited chronic attendance problems which seemed to be unaffected by any change in the presentation and content of curriculum. In all of these cases, the teacher/researcher contacted the parents by phone and verified that influences outside of school were high contributory factors to the students' lack of attendance. In three of the four cases, medical problems played a major role in the students' inability to attend class regularly.

As was indicated by the conduct report data, student midquarter progress report codes revealed that as the interventions progressed through the three grading periods, a steady improvement of student motivation to participate was demonstrated. Progress report codes were divided into two main groups, positive comments and negative comments. The twenty comments most often used in the progress reports sent home to parents throughout the course of the intervention were selected for analysis because of their high rate of recurrence (see Appendix E). These comments were meant to show an accurate picture of student attitude and interest in classroom participation as well as student academic accomplishment. The ten most often selected codes in each of the two categories were tabulated and compared for changes as the year progressed. Figure 2 represents the tally results for the 98 students who participated in the project.

Figure 2
Midquarter Progress Report Comment Data



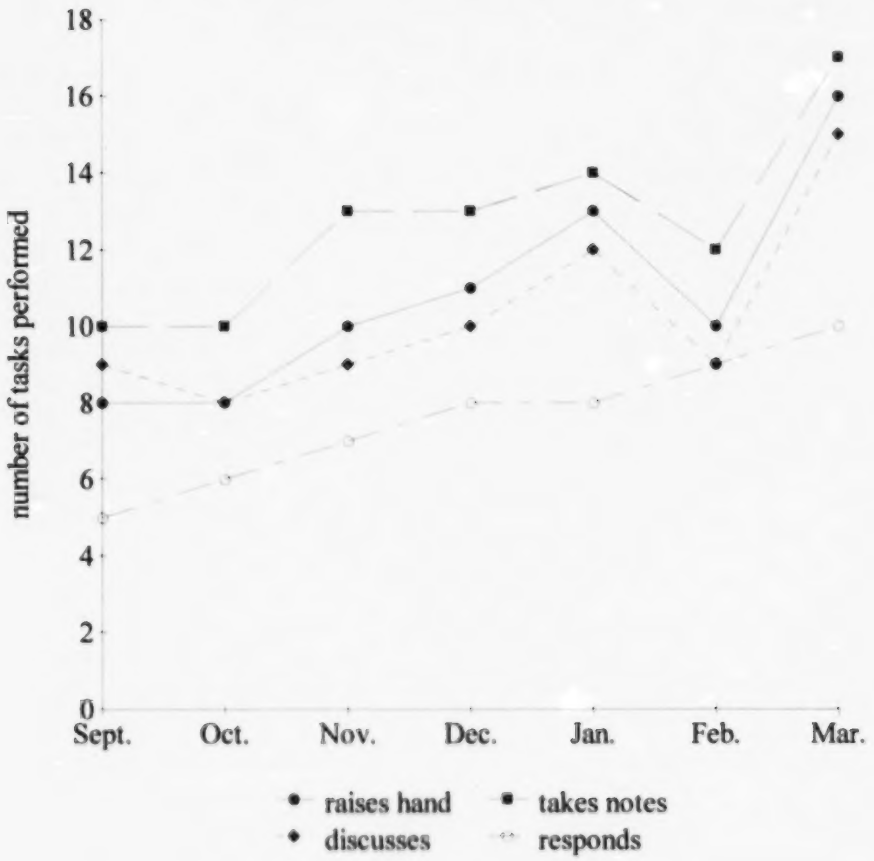
The number of negative comments gradually declined during each of the three grading periods, going from 27, to 22, and then 15 in the third quarter. The cooperative learning strategies combined with the high interest articles and mental energizers seemed to provide students with the necessary motivation to become more engaged in the learning process. When these interventions were most prominently used in the lesson for the day, student behavior showed an unmistakable enthusiasm for the material. Whatever the demands of the assignment happened to be, students often did what was required of them, and more. For example, students did not jump out of their seats when the bell rang, but stayed an extra minute to finish a paragraph, or when a one page report was called for, two pages were turned in with greater detail and depth than expected.

The number of positive comments almost tripled during the three grading periods, indicating a significant improvement in student motivation. As students became more familiar with the cooperative learning techniques practiced in classroom activities and as trust developed within the groups, these factors contributed to lively, animated discussions pertaining to topics assigned. Whether the connotation of a word was the subject of the discussion or the effectiveness of barges as a means of modern transportation was under consideration, the interest and enthusiasm of students showed a definite improvement. Students felt free to disagree with the teacher/researcher or with each other without worry of being "wrong." The process of arriving at a conclusion and being able to support the position with evidence and logic became the central focus of many of the lessons. The teacher/researcher observed the process of compromise in active discussion in order to achieve consensus which sometimes required the tactful use of humor without criticism of the individual. The willingness to take risks and to assume leadership roles within the groups was much more common in the second semester than in the first. Students' abilities to encourage each others' efforts within the dynamics of the groups was also a prominent improvement. Positive comments on the midquarter progress reports rose from 45 in the first quarter to 65 in the second quarter and finally, to 128 in the third quarter. It should be noted that up to two comments per student may be given on a midquarter progress report, accounting for the high number of positive comments when only 98 students took part in the project.

A third source of data was a behavioral checklist used to gather information regularly from one class of twenty students. Because of the block schedule, assemblies, holidays, vacations, and a number of other activities which prevented class from meeting every day, this class convened a total of 77 times for a full 85 minute class period during the seven months of the intervention's research phase. Furthermore, the class did not meet an equal number of times in each month. In order

to compare the data, the teacher/researcher calculated an average daily response for each of the four observable behaviors: raises hand, takes notes, contributes to discussion, and responds when called upon. Figure 3 graphs the results of the interventions as recorded on the teacher observational checklist over the course of the project.

Figure 3
Teacher Observational Checklist Data



The interventions appear to have had a positive effect on each of the four categories, reflecting an increase in student engagement. Even when the classroom activity was traditionally structured, such as when direct instruction by the

teacher/researcher was the teaching strategy, an overall increase in note taking indicates an increase in student motivation to learn.

While figures show a gradual, but steady rise throughout the intervention, the February figures indicate a slight decline in student engagement for three of the four categories. These three behaviors are all student initiated, whereas the fourth behavior, responds when called upon, is teacher/researcher initiated. The graph pattern for the fourth behavior is noticeable different from the graph pattern of the other three behaviors. Two reasons for the temporary decrease in enthusiasm of the three student initiated behaviors are probable. First of all, in February the second semester begins, bringing with it some changes in student scheduling. A general excitement caused by the changes in the school environment combined with the relaxed atmosphere after the stress of first semester final exams are over may account for the decline in academic enthusiasm.

A second possibility is that in February an emphasis on preparation for the Illinois Goal Assessment Program (IGAP) takes a great deal of class time. This causes a reduction in the amount of time available for mental energizers, cooperative learning, and journaling. For the sophomores who participated in the research project, IGAP tests took six days to complete and required a two week change of schedule. The block schedule to which they had become accustomed did not match up with the IGAP scheduling which was designed for the other 80% of the sophomore population not in tech prep, and therefore, not on the block schedule. Preparing for the two week shift in scheduling as well as reviewing for the tests themselves may have been responsible for the decrease in student motivation to participate during February. Because of IGAP tests, data from the intervention was gathered only up to the time when the testing began.

Reflective journaling was the last component of the intervention to be analyzed. Because the journals were so subjectively written, care had to be taken to avoid

evaluating them on a personal level. Since journals were collected two times in each grading period, a comparison of the number of journals turned in and the grades assigned to them was developed into a table. As long as journals were complete, handed in on time, and reflected on a variety of subjects including required topics assigned by the teacher/researcher, an A was earned. A grade of B was given if only eleven acceptable entries were done, or if the journal was late, or if the index page was incomplete. A grade of C was earned for ten acceptable entries or two days late, with an incomplete index, and so on (see Appendix G). Table 1 shows the grade distribution for the three grading periods of the intervention.

Table 1

Journal Grades by Monthly Due Dates

Grades %	Sept.	Oct.	Nov.	Jan.	Feb.
A (93-100)	31	48	59	89	93
B (86- 92)	16	19	17	3	3
C (78- 85)	22	11	8	1	0
D (70- 77)	10	5	2	0	0
F (0- 69)	19	15	12	7	2

Journal writing assessment reveals a dramatic increase in student participation and motivation as the intervention has progressed. Students have reflected in their journals about journal writing itself, and have favorably commented about their comfort with the informal style of writing. Journals allow a safe, pressure free outlet for students to explore their feelings, ideas, and thought processes which in turn encourages their ability to problem solve. Metacognition is enhanced; self-awareness is encouraged. The non-judgmental nature of this kind of writing was embraced by an

increased number of students each time the assignment was collected. In contrast to the formal style of essay writing emphasized in preparation for IGAP testing, the journal provided a personal, non-academic balance in their writing. Because journal writing was connected to curriculum, students were given the opportunity to explore personal reactions to various essays which they had read and analyzed, field trips they attended, and school events outside the classroom in which they participated. Making connections between what is taught in school and how students live their lives, or plan to live their lives in the future, is an essential ingredient in the educational process. Transfer and metacognition are often neglected in the classroom experience; however, journal writing provides the framework for students to build a solid structure out of what they know and how it can be incorporated into their experiences in a useful way.

Conclusions and Recommendations

Based on the presentation and analyses of the data on cooperative learning strategies, critical thinking skills, and reflective journal writing, students demonstrated a gradual, yet steady improvement in motivation to participate in the learning process. The attitudes developed through the implementation of the less structured, more active teaching strategies were beneficial even when traditional strategies were occasionally used. The social skills practiced in the cooperative learning environment transferred to learning experiences outside of the classroom, such as attendance at field trips or when guest speakers made presentations.

All 98 of the tech prep sophomores had their schedules changed for two weeks to adapt to the IGAP test schedule designed for the other sophomores in the building. Completely different class groupings were necessitated in order to fit five classes usually on a block schedule into four traditional class periods. As an IGAP test administrator, the teacher/researcher anticipated confusion and attendance problems when testing began due to the unfamiliarity of the schedule. However, students were observed advising each other, encouraging each other, and problem solving together in

a practical application of the critical thinking and cooperative skills which they had been learning throughout the first semester. Transfer was evident on a daily basis as they worked to accomplish a successful adjustment to a challenging situation. During this time period, only three students were tardy to class, and that was on the first day of the new schedule.

Because these sophomores are in tech prep, they have been encouraged to think about the connection between skills learned in the classroom and practical applications in the world of work for these same skills. The block schedule they function with requires an added sense of responsibility since their schedule does not coordinate with the rest of the student population whenever there is an early release day or an assembly. It was imperative that the skills needed to make these adjustments throughout the school year be taught and encouraged in classroom activities. The data reflects their increased motivation to succeed. Their decision to enroll in a challenging elective program may have given these students additional motivation to learn from the opportunities offered through cooperative learning, critical thinking, and reflective journaling. It seems that tech prep and block scheduling have provided the ideal situation for the practice of the three strategies of this intervention.

This research would not be complete without mention of an added benefit to the expected results of including reflective journaling in a secondary school curriculum. The enhancement of metacognition and the opportunity for transfer of learning experiences to the personal domain were results which literary research suggested would take place. But even if these results were not so significant, an additional effect of reflective journaling has proven to be invaluable, although not easily measured.

During the seven months of the research, two students confided thoughts of suicide, two others revealed pregnancies, and one was able to share feelings about a parent's impending death from a terminal illness. In each of these instances, the student's writing was a call for help, a clearly expressed need for immediate attention.

If it had not been for the opportunity to write their personal feelings and fears in a safe medium such as a journal, it is doubtful that any of the students would have found the courage to speak about their sensitive problems to a teacher. For teenagers, and perhaps for many adults, to say out loud what they feel is so much more difficult than to write it down; they are often concerned about image and what other students might think if overheard. But because their journals give them a safe distance and a quiet forum to present their feelings, students are often relieved to write about problems, big and small. Put another way, having this close relationship with a teacher through the journal gives students another "parent" to call upon when problems overwhelm them and they feel that they cannot yet speak to their parents about it. The teacher can then be an advocate for students as well as a trusted, nurturing adult, who can call upon numerous support staff and encourage students to better communicate with their parents. Although this added benefit to the intervention cannot be objectively measured, it is, just the same, an extremely significant outcome of reflective journaling.

Data indicate that the steady overall improvement in student engagement and motivation to participate in classroom activities was positively influenced by the three types of intervention implemented during the research. Even if block scheduling had not been in place, it seems assured that the interventions would have achieved similar results. In cases where the curriculum does not allow for so much time to be devoted to writing, as an English curriculum does, the other components of the intervention would be a significant improvement over a traditional lecture style teaching strategy. Journaling could be done on rare occasions even in a mathematics course with some creativity and planning. The positive responses of the students who participated in this project were so encouraging that all indications are that the same positive results could be achieved with any secondary class.

A final point in favor of the interventions might be to re-examine the literary research available regarding the lack of motivation of so many students who have high

ability. A great deal of time is devoted to motivating students with limited ability, but not nearly as much is being done to make the classroom an interesting and rewarding place for the students who can do the work, but choose not to. Clearly, educators must call for a different approach. The demands of the 21st century will present problems which this generation of teenagers will be the first to face. The teamwork skills established through cooperative learning strategies will be essential in the crowded future; critical thinking skills will be necessary to solve problems which are not yet known. Self-analysis through reflection, metacognition, and transfer are all useful tools for the life-long learner envisioned by today's educator. By modernizing the techniques used in the contemporary classroom, teachers will better prepare their students to meet those challenges.

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APPENDICES

Appendix A

Teacher Survey

Please circle your response:

Students who are ***new*** in a school or in a class are:

	always	usually	sometimes	never
1. ***less likely*** to answer when called upon	4	3	2	1
2. ***less likely*** to raise their hands and to volunteer in class discussions	4	3	2	1
3. ***more likely*** to take notes during class	4	3	2	1
4. ***more likely*** to ask questions when they don't understand an assignment	4	3	2	1
5. ***more likely*** to exhibit off-task behavior	4	3	2	1

Appendix B
Bloom's Cognitive Taxonomy

Bloom's Cognitive Taxonomy

Question Levels	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Cognitive task required by the question	eliciting factual data; testing recall and recognition	translating; interpreting; extrapolating	using in new/ unfamiliar situations; showing how; transferring	breaking down into parts; relating parts to whole	combining elements into a pattern; integrating information	establishing criteria using a rationale; judging according to criteria
Key words or phrases used at each level	*Who* *What* *When* *How much* *Describe* *Label* *List*	*State in own words* *Define* *Paraphrase* *Give an example* *Explain what is meant* *Explain what is happening* *Summarize* *Identify*	*How would you use* *Tell what would happen* *Construct* *Explain* *Demonstrate*	*Distinguish* *Diagram* *Dissect* *Classify* *Compare* *Contrast* *Connect* *Arrange*	*Write* *Create* *Make* *Compose* *Combine* *Solve* *Develop* *Blend* *Formulate* *Infer* *Predict*	*Appraise* *Choose why* *Judge* *Decide* *Verify* *Criticize* *Rate* *Defend* *Value*

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Appendix C
Interdisciplinary Lesson Plan

LESSON: an ***integrated thematic unit*** on The River, by Gary Parlsen

OBJECTIVE: 1. to teach students to analyze a novel
2. to teach students to use the computer for word processing using the accepted format of the English Dept.
3. to teach students to utilize applied math skills to enhance their understanding of the novel.
4. to teach students to apply related chemistry concepts to complement their understanding of the novel

ACTIVITY: 1. students will write an expository essay according to IGAP style
2. students will demonstrate the ability to write comprehensive essay answers to study guide questions designed to include the six levels of Bloom's Taxonomy
3. students will demonstrate the ability to effectively use cooperative learning techniques
4. students will demonstrate the ability to use the word processor and correct MLA typing format on the computer
5. students will design maps using appropriate navigational notations
6. students will practice metacognitive techniques in discussion based on logic as applied to the decisions made by the novel's characters
7. students will collect and analyze water samples collected in the area to to determine purity and identify contaminants -- this information will be entered into a computer data base for future comparisons and analysis in health class

OPTIONAL ADDITIONAL ACTIVITY:
1. off-site investigation to the Joliet Water Sanitation Processing Plant
2. Guest speaker from a Joliet barge company
3. video about life on a barge
4. suggested additional reading: a. other novels by Gary Paulsen
   b. other survival novels such as Adrift by Callahan or Alive by Ried
5. class activity based on NASA Survival Survey, "Lost on the Moon"
6. familiarize students with navigation equipment on an off-site investigation to Navy Pier

Appendix D

Student Conduct Report

Joliet Township High Schools
– District 204 –
STUDENT CONDUCT REPORT

Date: _____

To the parents of: _____ Year in School: Fr. Soph. Jr. Sr.
Student Name Circle One

From: _____ Subject: _____
Teacher Name

This is to inform you of the problem your son/daughter is having in my class. The following areas need our attention:

_____ Excessive Talking _____ Times
_____ Missing Books or Supplies _____ Times
_____ Homework Not Completed _____ Times
_____ Other _____

_____ Excessive Absences _____ Times
_____ Excessive Tardiness _____ Times
_____ Excused Absences _____ Times
_____ Unexcused Absences _____ Times

Comments and/or Recommendations: _____

I would appreciate any assistance you can give to resolve the problem. You can contact me at _____ between the hours of _____ and _____. If unable to contact me, please call the counselor, _____, for further information and/or to arrange a parent-student-teacher-counselor conference at 727–6930. Thank you.

Form 228

WHITE COPY: Parent
YELLOW COPY: Counselor
PINK COPY: Dean
GOLD COPY: Teacher

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Appendix E
Midquarter Progress Report Comment List

	Positive Comments		Negative Comments
01	pleasure to have in class	11	required work late, incomplete
02	shows positive leadership	12	inconsistent work, good and poor at times
03	works very hard	13	inadequate class participation
04	works well with others	14	needs to improve listening skills
05	always prepared	15	poor attitude
06	enjoys class	16	not working to ability
07	cooperative	17	fails to cooperate with group
08	excellent class participation	18	does not take class seriously
09	performance has improved	19	sleeping in class
10	good attitude	20	in danger of failing

Appendix F

Teacher Observational Checklist

	student names	dates			
1					
2					
3					
4					
5					
6					
7					
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34					
35					
		raises hand	takes notes	contributes to discussion	responds when called upon

Appendix G
Journal Rubric

handed in on date due	12 half page entries	index included with titles and dates	no more than 2 entries about same topic; school appropriate topic and diction
handed in 1 day late	11 half page entries	index included with titles or dates	no more than 3 entries about same topic; school appropriate topic and diction
handed in 2 days late	10 half page entries	index included with titles or dates	no more than 3 entries about same topic; 1 or 2 entries may not be school appropriate topics or diction
handed in 3 days late	9 half page entries	no index	no more than 3 entries about same topic; 3 or more entries may not be school appropriate topics or diction
handed in 4 days late	8 half page entries or less	no index	4 or more entries about same topic; 4 or more entries may not be acceptable topics or diction

Appendix H
Cooperative Lesson Plan

LESSON: What is ***cooperative learning***?

OBJECTIVE: 1. To determine the students' current understanding of cooperative learning concepts and techniques.
2. To recognize the importance of social skills necessary for cooperative learning.
3. To apply these skills effectively in a cooperative learning activity.

ACTIVITY: 1. Students will take dictation of these discussion items:
* develop a practical definition of "cooperation"
* list at least 3 skills necessary for a successful cooperative activity
* give at least 2 examples of times when they have used cooperative techniques outside of school
2. Students will be randomly divided into triads for discussion and note-taking of the above items.
3. Students will orally present group conclusions to the whole class.
4. Students will evaluate each other's conclusions, eventually reaching consensus on the main points.
5. Teacher directed group processing activity will be used for closure.

CLASS SESSIONS REQUIRED: 2-3

OPTIONAL ADDITIONAL ACTIVITY: Students will work with their cooperative groups to design posters listing the guidelines of cooperative learning. These posters will be displayed in the class and will be referred to when questions or problems arise during future cooperative activities.

SKILLS USED: 1. Writing: to take effective discussion notes
to record with accuracy orally delivered information
2. Listening: to note details of discussion accurately
to note oral instructions accurately
3. Speaking: to discuss effectively in small groups
to present conclusions of the small group

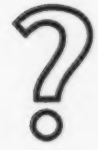
Appendix I

PMI Chart

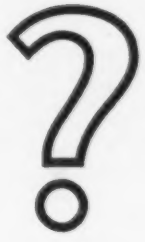
PLUSES	1.	
	2.	
+	3.	
MINUSES	1.	
	2.	
–	3.	
INTERESTING OBSERVATIONS	1.	
	2.	
	3.	

Appendix J

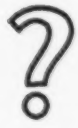
Mrs. Potter's Questions



Mrs. Potter's Questions

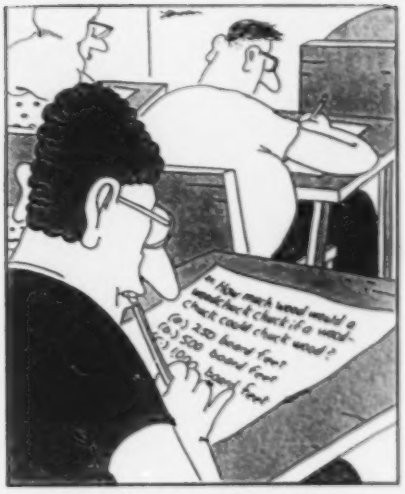


1. What were you supposed to do?
2. What did you do well?
3. What would you do differently next time?
4. Do you need any help?



Appendix K

Cartoon Mental Energizers



The Wildlife Management finals

"Ha ha ha, Biff. Guess what! After we go to the drugstore and the post office, I'm going to the vet's to get tutored."

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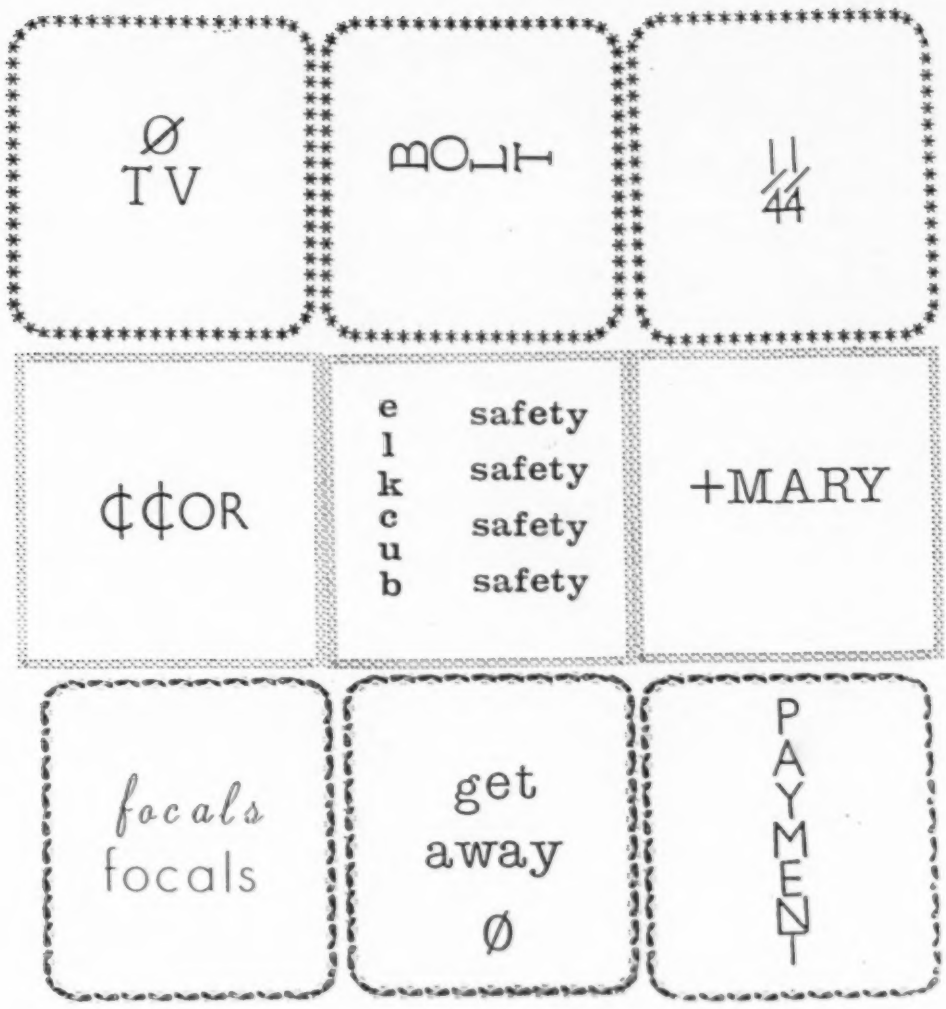
Appendix L

Word Puzzle Mental Energizers



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Appendix M

Short Article Mental Energizers

MEMORIALS

Let Your Sorrows Drift Away

UNWILLING TO SCATTER A BELOVED'S ASHES IN THE OCEAN? Reluctant to keep that urn around the house? Two South Florida inventors may have come up with a solution. David Humble, a Pompano Beach entrepreneur, and Hans Barth, a Ft. Lauderdale engineer, are hoping to corner the post-cremation market by licensing their patented "Velella." A Velella is the world's first seaworthy urn, and it promises to sail a loved one's remains right off into the sunset. The plastic, football-size container has a keel and a wind-catching groove. It biodegrades within two years, releasing the ashes inside before a backdrop of anything from Hong Kong Harbor to the Jersey shore.

Floating funeral: Velella urn

Look out, Bullwinkle: The Make-A-Wish Foundation and animal rights groups are locking horns again after the foundation sent a 17-year-old Pennsylvania boy with cancer to Alaska to hunt moose. Animal rights groups were already mad at the foundation — which grants wishes to dying kids — for sending another boy to Alaska to hunt Kodiak bears. One animal rights activist found it odd that someone so ill would want to kill something. (How 'bout a trip to Disney World instead?)

So much for a diplomatic solution: An American Indian who hung an eagle feather from her graduation cap and two blacks who wore multi-colored African tribal cloths with their graduation gowns have been denied high school diplomas in Muskogee, Okla. School officials said the students blew off the dress code; all grad wannabes had to sign a statement saying they understood the dress code. The three have to finish 25 days of summer school before they can get their diplomas.

Kiss gets 6-year-old in trouble

BY THE ASSOCIATED PRESS

Lexington, N.C. — These days, a kiss isn't just a kiss — not even in the first grade.

A 6-year-old boy who kissed a girl on the cheek was suspended last week on the grounds of sexual harassment.

Jackie Prevette said the school overreacted to an innocent peck on the cheek by banishing her son, Johnathan, to a room apart from his classmates. Johnathan said that the girl asked him to kiss her and that he was expressing friendship, according to his mother.

"Can't you just imagine children skipping down the hall holding hands? Isn't that Norman Rockwell America?" Prevette said.

District spokeswoman Jane Martin said the policy is clear: "A 6-year-old kissing another 6-year-old is inappropriate behavior. Unwelcome is unwelcome at any age."

The rules are outlined in a student handbook given to each child at the start of the school year. Parents are asked to sign a form confirming that they explained the do's and don't's, Martin said.

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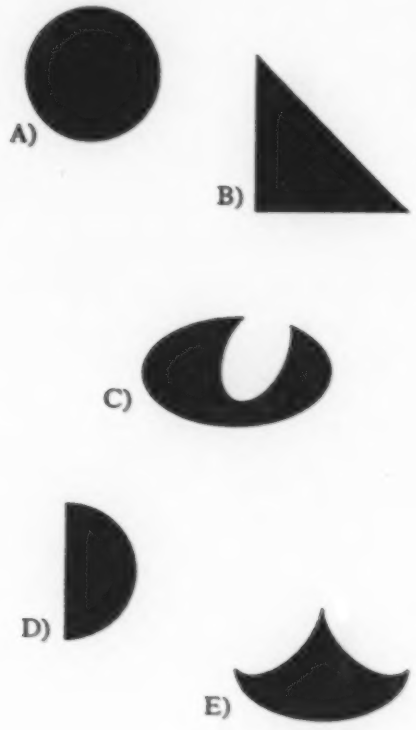
Appendix N

Trivia Fact Mental Energizers

1. THE RIGHT ANSWER

Exercise: Five figures are shown below. Select the one that is different from all the others.



Still Champ After Half a Century

How big is the single biggest living thing on earth? If an average-size man stood next to the General Sherman sequoia tree in California, the trunk area below his belt would outweigh a Boeing 737. The tree's total weight: an estimated 6,167 tons.

In an era when records are broken daily, this heavyweight champ has held its title since 1940. That's when the American Forestry Association, a nonprofit booster of trees and forests, began its National Register of Big Trees. Some 750 arboreal champions, each one the largest of its species, are now listed.

Tiniest of the titans is a shrub-size Virginia Stewartia found in the town of Chesapeake. A giant of its kind, it stands but 15 feet tall, with a trunk 10 inches around.

VITAL STATS

Must Have

IN A NEW MIT POLL, 1,000 Americans voted on which of these inventions they could not live without. The personal computer tied for last – with, sigh, the blow-dryer.

ESSENTIAL INVENTIONS

[illegible]	[illegible]
Light bulb	54
[illegible]	[illegible]
TV	22
[illegible]	19
Microwave oven	13
[illegible]	[illegible]
Personal computer	8

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Appendix O
Journal Topics

1. If you could be incredibly good looking or incredibly wealthy and keep the looks you were born with, which would you prefer and why?
2. What do you think your life will be like in 10 years? Describe your personal and professional future.
3. Name 3 qualities you feel are most important in a best friend and tell why each is important to you.
4. Describe your favorite room in your home. Does the room have a mood or a feeling it creates for you?
5. If you could live in the past, where would you choose to live and when? Be sure to explain your reasons.
6. Complete this thought in a paragraph or two. If I could change one thing about myself, it would be...
7. If you had to live alone for one year, what 10 items would be important to have and why?
8. Complete this thought in a paragraph or two. If I were a high school teacher, I would grade my students on the basis of...
9. If you could be remembered for one piece of advice, what is it and why?
10. Describe 3 items which you would place in a time capsule to be opened in 100 years and tell why each was chosen.
11. After visiting the Mitsubishi Auto Plant, tell what most impressed you about this contemporary manufacturing plant.